

REMARKS

In the office action, the Examiner (1) rejected Claims 28 and 29 under 35 U.S.C. § 112, first paragraph, as containing subject matter not described in the specification; (2) rejected Claims 23-26, 31 and 32 under 35 U.S.C. § 112, second paragraph, as being indefinite; (3) rejected Claims 21-27 and 30-32 under 35 U.S.C. § 102(b) as being anticipated by an article by Wu & Frenz ("Wu"); (4) rejected Claims 21-27, 31 and 32 under 35 U.S.C. § 102(b) as being anticipated by an article by Rose & Jorgenson ("Rose"); (5) rejected Claims 21-27 and 30-32 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,169,511 issued to Allington et al. ("Allington"); and (5) rejected Claims 21-27 and 30-32 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,911,807 issued to Burd ("Burd"). Reconsideration of the rejected claims and allowance of the application, as amended, are requested.

Claims 21 and 23 have been amended to correct an obvious misspelling of the term analyte. No new matter is added by these amendments.

I. § 112, First Paragraph, Rejections

The Examiner stated that Claims 28 and 29 contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. In particular, the Examiner states that the specification does not disclose the equipment necessary to perform applying a pressure or drawing a vacuum as recited in Claims 28 and 29, respectively.

Claim 28 depends on Claim 21 and recites wherein creating a migratory field includes applying a pressure to the separation pathway. Claim 29 is also dependent on Claim 21, and it recites wherein creating a migratory field includes drawing a vacuum in the separation pathway. Both these claims have the requisite support in the specification. With respect to Claim 28, the specification describes that the migration field can be created by a pneumatic source. (e.g., page 7, lines 5-7). The specification

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also states on page 8, lines 16-18, that a pneumatic system can be used to apply air pressure to elute fractions from the separation pathway. The specification thus specifies the device that can be used to apply the pressure to the separation pathway as claimed. Use of pneumatic devices is well known in the art for applying air pressure to desired locations. Similarly, with respect to Claim 29, the specification describes that the migration field can be created by a vacuum source. (e.g., page 7, lines 5-7 and page 8, lines 18-19). Again, the specification indicates the device that can be used to apply the vacuum to the separation pathway. Use of vacuum devices is also well known in the art for applying a vacuum to desired locations.

As claims 28 and 29 have support in the specification, Applicants request that the § 112, first paragraph, rejections be withdrawn.

II. § 112, Second Paragraph, Rejections

The Examiner stated that Claim 23 fails to recite any sequential relationship between the step of synchronizing the collecting and interrupting with the mobility of the analyte. For clarification, Claim 23 has been amended to recite "the method of claim 21 wherein the collecting and interrupting is synchronized with the mobility of the analyte."

With respect to Claim 24, the Examiner stated that there is no sequential relationship between the recited step and the steps in independent Claim 21. The amendment to Claim 24 obviates this rejection.

The Examiner rejected Claims 25 and 26 for lack of antecedent basis for the term injecting. Both claims have been amended to specify applying a sample rather than injecting a sample to provide antecedent basis.

With respect to Claim 31, the Examiner stated that the term "potential" is unclear and not described in the specification. However, the term is described in the

specification, e.g., on page 7, lines 6-12. As the specification indicates, potential refers to an electric potential that can be applied by electrodes.

With respect to Claim 32, the Examiner states that there is no sequential relationship between the recited step of establishing a time interval, and that the language is unclear. For clarification, Claim 32 has been amended to recite "The method of claim 21 wherein the predetermined time interval is established based on a composition of the separation pathway."

No new matter has been entered by the above amendments. Each of the § 112 rejections has been overcome or obviated, and Applicants respectfully request the rejections be withdrawn.

III. § 102 (b) Rejections

The Examiner rejected several claims as being anticipated by the Wu, Rose, Allington, and Burd references. The claims are however distinguishable from these references.

The present application is directed to a method for performing high throughput collection of analytes from samples. High throughput can be achieved because the analytes are collected "blindly," i.e., the analytes are collected without prior detection or analysis. In accordance with one or more embodiments of the invention, a sample is applied to an input of a separation pathway, a migratory field is generated in the separation pathway, and analytes from the samples are eluted and collected in respective collection wells without first analyzing or detecting the analytes. The collected analytes can thereafter be analyzed or detected using a detector. Examples of possible detectors include a fluorescent detector, an ultraviolet-visible detector, a mass spectrometry detector, an immunoassay detector, an electrochemical detector, a

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radiochemical detector, a nuclear magnetic resonance detector, and a surface plasmon resonance detector.

Independent Claim 21 has been amended to specify the step of collecting the analyte in a collection well without using a detector to analyze the analyte prior to collection. Support for the amendment is present throughout the specification including, e.g., page 8, lines 27-29. No new matter has been added by this amendment.

Each of the cited prior art references performs "on-line" detection or analysis of the substances being separated, i.e., at some point in the process after separation but prior to collection. For example, the Rose reference indicates that "A short section of the polyimide coating was burned off 20 cm from the end of the capillary to allow 'on-line' detection using a fixed wavelength (229 nm) UV absorbance detector. Sample was introduced into the capillary using an autosampler..." (page 24-25). The Wu reference specifies use of Hewlett Packard HP CE system with a built-in UV diode array detector for fraction collection. (page 531, second column). The Allington patent discloses an electrophoresis process that detects separated bands of molecular species and then collects the bands in sample cells. (col. 4, lines 54-61). The Burd patent specifies on-line detection (col. 3, lines 25-30 and col. 4, lines 60-63). None of the cited references accordingly discloses or suggests collecting the analyte in a collection well without using a detector to analyze the analyte prior to collection. In accordance with one or more embodiments of the invention, analysis of the analyte can be performed after collection as specified, e.g., in Claim 24. Independent Claim 21 and Claims 22-32, which are dependent on Claim 21, are thus allowable over the cited references.

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Claims 21-32 are pending in the present application. As all claims are now believed to be in condition for allowance, issuance of a Notice of Allowance is requested.

Respectfully submitted,



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